

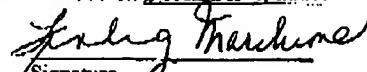
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Linda J. Marchione

Name of Person Signing Certificate

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant : D. Ryan Breese
Application Number : 10/774,161
Filed : February 6, 2004
Title : PREPARATION OF POLYETHYLENE FILMS
Group Art Unit : 1791
Examiner : Mathieu D. Vargot
Docket No. : 88-2066A

Mail Stop: Appeal Brief—Patents
Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

I. REAL PARTY IN INTEREST

The real party in interest is Equistar Chemicals, LP.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Applicant, his representatives, or his assignee that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Adjustment date: 12/04/2009 HMARZ11 10774161
12/26/2006 HVUONG1 00000017 012230 012230 10774161
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12/04/2009 HMARZ11 00000014 012230 10774161
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III. STATUS OF CLAIMS

Claims 1, 2, 4-9, 14 and 15 are on appeal. Claim 1 was amended during prosecution. Claims 2, 4-9, 14 and 15 are original. Claims 16-19 were withdrawn from consideration due to the Examiner's restriction requirement. Claims 3 and 10-13 were canceled during prosecution.

IV. STATUS OF AMENDMENTS

No amendments were made after the final Office Action.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Applicant's claim 1 claims a method for preparing a high modulus, high density polyethylene (HDPE) film. The method comprises orienting in the machine direction (MD) an HDPE blown film to a draw-down ratio greater than 10:1 (Specification, page 5, lines 19-29). The MD oriented film having an MD 1% secant modulus of 1,000,000 psi or greater. Preferably, the MD 1% secant modulus is 1,100,000 psi or greater (Specification, page 6, lines 19-22). The HDPE has a density within the range of 0.950 to 0.970 g/cc (Specification, page 3, lines 9-14) and a number average molecular weight (Mn) within the range of 11,000 to 20,000. Remaining claims 2, 4-9, 14 and 15 depend from claim 1 and thus incorporate all of the limitations of claim 1.

VI. GROUNDS OF REJECTIONS TO BE REVIEWED ON APPEAL

- (a) Claims 1, 2, 4-9, 14 and 15 are rejected under 35 U.S.C. § 103(a) as being obvious over Underwood et al. (US 3,179,326).
- (b) Claims 1, 2, 4-9, 14 and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Duckwall et al. (US 6,391,411).

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VII. ARGUMENTS

(a) Response to Obviousness Rejection of Claims 1, 2, 4-9, 14 and 15 over Underwood et al.

There are two essential elements of claim 1 which the Examiner failed to carefully consider and fairly compare against the teaching, as a whole, of Underwood et al.

The first essential element is that the film must be oriented in the machine direction to such a drawdown ratio that the oriented film possesses an MD 1% secant modulus of 1,000,000 psi or greater. As disclosed in the Background of the Invention, high MD modulus is required for the film to be used as a stand-up pouch and provide the package with unique "billboard" effect. See Specification, from page 1, line 27, to page 2, line 15.

Underwood et al. is not concerned with orienting a polyethylene film in the machine direction to an extent to give the oriented film a high MD modulus. Instead, Underwood et al. is concerned with an improved tear tape for opening thermoplastic wrapping film without adversely affecting said film. See Underwood et al., col. 1, lines 35-37. Underwood et al. is completely silent with regard to the effect of the machine-direction orientation on the modulus. This is because "wrapping films," by definition, are flexible films which require low modulus rather than high modulus. Therefore, Underwood et al. does not encourage any person of ordinary skill in the art to modify its method to come up with Appellant's invention, which is to produce an oriented film having an extremely high MD modulus for applications such as stand-up pouch.

The second essential element of claim 1 is that the drawdown ratio must be greater than 10:1 so that the requisite MD modulus of the first essential element can be reached. Further to this point, dependent claim 14 requires the drawdown ratio greater than or equal to 11:1. Appellant has shown ample

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evidence that orienting HDPE film at a drawdown ratio of 10 or less does not produce an MD oriented film having an MD 1% secant modulus of 1,000,000 psi or greater. See Specification, pages 8, 10, and 12, Tables 1-3.

In contrast to Appellant's invention, Underwood et al. would prefer a low modulus of the oriented film because the "intended application" of the wrapping films requires a low modulus so that the film can be flexible. Therefore, Underwood et al. prefers or even requires the drawdown ratio less than or equal to 10:1 because otherwise the oriented film would have too high modulus as Appellant's results in Tables 1-3 show when the drawdown ratio is greater than 10:1, the modulus will be greater than or equal 1,000,000. To this fact, Appellant respectfully draws this Honorable Board's attention to the teaching of Underwood et al. in col. 8, lines 64-70, where it states: "it is to noted that the crystalline polyolefin film is preferably stretched at least 700 percent desirably 800 percent or greater in the longitudinal direction." Note that Underwood et al. does not teach that the film should be or it is preferred to be stretched greater than 900%.

Therefore, to a person of ordinary skill in the art, Underwood et al. teaches away from Appellant's invention. At best, it does not encourage any one of ordinary skill in the art to modify its teaching and come up with Appellant's invention. Thus Underwood et al., as a whole, cannot make claim 1 and its dependent claims 2, 4-9, 14 and 15 obvious. More particularly, it cannot make claim 14 obvious because claim 14 requires the drawdown ratio greater than or equal to 11:1. Thus Appellant respectfully requests that this Honorable Board reverse the Examiner's rejection.

(b) Response to Obviousness Rejection of Claims 1, 2, 4-9, 14 and 15 over Duckwall et al.

Like Underwood et al., Duckwall et al. does not teach or suggest orienting a film beyond a drawdown ratio of 10:1 and it does not teach or suggest that orienting at a drawdown ratio greater than 10:1 will result in a film having a

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modulus greater than or equal to 1,000,000. Thus, the teaching of Duckwall et al., as a whole, cannot make the invention obvious because the invention, as a whole, is a method to produce a machine-direction oriented film having an MD modulus greater than or equal to 1,000,000 by orienting the film in the machine direction at a drawdown ratio greater than 10:1.

Like Underwood et al., Duckwall et al.'s disclosure is not concerned with improving a film's modulus so that the film can be used for applications such as stand-up pouches. Rather, Duckwall et al.'s disclosure is concerned with the improvement of the film's water vapor transmission property. See the Abstract and the Summary of the Invention. As such, Duckwall et al. does not provide any teaching or suggestion regarding how to improve the modulus of the oriented film. Duckwall et al. provides two examples: in Example 1, the drawdown ratio is 4.5:1 and the MD modulus is only 300,000; in Example 2, the drawdown ratio is 3:1 and the MD modulus is only 220,000. These Duckwall et al.'s films cannot be qualified for applications such as stand-up pouches because their MD modulus values are too low. The MD modulus values are far below Appellant's claimed value of 1,000,000.

The drawdown ratio of greater than 10:1 is critical to Appellant's invention because otherwise the oriented film cannot achieve an MD modulus of greater than or equal 1,000,000. Appellant's results in Table 1 (page 8) show that at a drawdown ratio is 10:1, the film MD modulus is 906,000, while at a drawdown ratio of 11.6:1 the film MD modulus is 1,197,600. Similarly, the results in Table 2 (page 10) show that at the drawdown ratio of 10:1, the film MD modulus is 913,700, while at a drawdown ratio of 11.3:1, the film MD modulus is 1,147,300. During the prosecution, the Examiner repeatedly ignored these underlining facts and insisted his view that Duckwall et al.'s teaching of a drawdown ratio of from "about 2 to about 10" makes Appellant's claimed ratios of greater than 10:1 (Appellant's claim 1) and greater than or equal to 11:1 (claim 14) obvious. See the Office Action of 07/10/2008, page 4, item 3. Apparently, the Examiner only

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paid attention to the difference between the numbers of the drawdown ratio but failed to compare the claimed invention as a whole against the reference reaching as a whole. Thus Appellant respectfully requests that this Honorable Board to reverse the Examiner's rejection.

In conclusion, Appellant respectfully requests that the Honorable Board of Appeals reverse the Examiner's above obviousness rejections and allow claims 1, 2, 4-9, 14 and 15.

Respectfully submitted,

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Enclosures: Appendices VIII-X

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VIII. Claims Appendix

1. A method comprising orienting in the machine direction (MD) a polyethylene blown film to a draw-down ratio greater than 10:1 to produce an MD oriented film having a 1% secant MD modulus of 1,000,000 psi or greater; wherein the blown film is made from a polyethylene resin which has a density within the range of 0.950 to 0.970 g/cc and a number-average molecular weight Mn within the range of 11,000 to 20,000.
2. The method of claim 1 wherein the MD oriented film has a 1% secant transverse-direction (TD) modulus of 300,000 psi or greater.
3. (Cancelled).
4. The method of claim 1 wherein the blown film is made from a polyethylene resin which has a density within the range of 0.955 to 0.965 g/cc.
5. The method of claim 1 wherein the blown film is made from a polyethylene resin which has a density within the range of 0.958 to 0.962 g/cc.
6. The method of claim 1 wherein the blown film is made from a polyethylene resin which has a weight average molecular weight (Mw) within the range of 130,000 to 1,000,000.
7. The method of claim 6 wherein the Mw is within the range of 150,000 to 500,000.
8. The method of claim 6 wherein the Mw is within the range of 155,000 to 300,000.
9. The method of claim 6 wherein the Mw is within the range of 155,000 to 250,000.

Claims 10-13 were canceled.

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14. The method of claim 1 wherein the draw-down ratio is 11:1 or greater.
15. The method of claim 1 wherein the oriented film having a 1% secant MD modulus of 1,100,000 psi or greater
16. (Withdrawn) An MD oriented polyethylene film made by the method of claim 1.
17. (Withdrawn) An MD oriented polyethylene film made by the method of claim 5.
18. (Withdrawn) An MD oriented polyethylene film made by the method of claim 9.
19. (Withdrawn) An MD oriented polyethylene film made by the method of claim 13.

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IX. Evidence Appendix

None

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X. Related Proceedings Appendix

None